REMARKS

This application has been reviewed in light of the Office action dated April 4, 2007. Claims 1-52 are pending in the application. By the present amendment, claims 1 and 20 have been amended. No new matter has been added. No new issues are believed to have been raised by the amendment that would be deemed to require a new search. The Examiner's reconsideration of the rejection in view of the amendment and the following remarks is respectfully requested.

By the Office Action, claims 1, 6-8, 12-14, 20-23, 29-31, 35-37 and 43 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,303,132 to Islam et al. (hereinafter Islam).

The Examiner stated that the Applicant's arguments regarding Islam were not persuasive and that what a reference can be said to suggest relates to the concepts fairly contained therein, and is not limited by the specific structure chosen to illustrate such concepts.

MPEP 2144.01 describes Implicit Disclosure as follows:

"[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968) (A process for catalytically producing carbon disulfide by reacting sulfur vapor and methane in the presence of charcoal at a temperature of "about 750-830°C" was found to be met by a reference which expressly taught the same process at 700°C because the reference recognized the possibility of using temperatures greater than 750°C. The reference disclosed that catalytic processes for converting methane with sulfur vapors into carbon disulfide at temperatures greater than 750°C (albeit without charcoal) was known, and that 700°C was "much lower than had previously proved feasible."); *In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976) (Reference disclosure of a compound where the R-S-R¢ portion has "at least one methylene group attached to the sulfur atom" implies that the other

R group attached to the sulfur atom can be other than methylene and therefore suggests asymmetric dialkyl moieties.).

In order to rely on the *In Re Lamberti*, there must be some inference or suggestion to one skilled in the art that such a teaching exists though not explicitly stated. Islam does not indeed expressly teach all of the elements of the claims 1, 20, 21 and 43. As such an anticipatory rejection under 102(b) seems inappropriate, especially in view of the fact that there is no teaching, suggestion or "concept fairly contained" in Islam that a plurality of consistency policies are provided, and that the consistency policy for an object is selected based upon the consistency policy's system performance. There is no disclosure or suggestion in Isalm that suggests that for a given object one of a plurality of policies is selected based upon performance.

As far as the rejection goes, the Examiner relies on a broad brushed statement that the invention of an improved cache system by Islam leads to improved system performance is tenuous at best. Such a statement does not in any way point to a teaching or suggestion that a plurality of policies are provided and that the system selects one of these policies to provide improved system performance. No such choice is provided or fairly suggested by Islam.

Islam describes different consistency action protocols each having different consistency actions (see Examples, col. 11 and 12 of Islam). However, this presentation was to demonstrate how to set up a consistency matrix for each protocol. There is nothing in Islam that these protocols are all available for selection for an object based upon system performance. In addition, there is no structure disclosed or suggested that would permit implementation of such a selection and implementation.

It is therefore respectfully submitted that Islam does not fairly suggest the elements of claims 1, 20, 21 and 43. Even if, *arguendo*, Islam teaches multiple consistency policies these policies are not "applied ... in which application of at least one consistency policy results in different system performance than a second consistency policy". Islam discloses application-specific policies, but these are assigned based on the application not on how the application would work with a different policy. There is no disclosure or suggestion that a plurality of application-specific policies simultaneously exists and that one of these policies is selected based upon system performance.

While the Applicant believed that the previously presented claims are allowable over Islam, claims 1 and 20 have been amended to further clarify the present claims. Claims 1 and 20 recite, *inter alia*, applying a plurality of consistency policies in which application of at least one consistency policy results in different system performance than a second consistency policy; and selecting a consistency policy from the plurality of consistency policies for an object, wherein the selection is made to improve system performance such that, the consistency policy selected for the object is selected based on a balance between consistency level and performance.

Islam does not disclose or suggest a balance between consistency level and performance as recited in claims 1, 20, 21 and 43. The Examiner's rejection cites col. 5, lines 41-43, col. 8, lines 59-61 and line 57, col. 10 through line 4, col. 11.

Col. 5, lines 41-43, and 61-64 of Islam describes a new setting for a consistency function when the status of an entry changes. For example, if the status changes from "ignore" to "notify" the consistency replacement function that executes the "action" needs to be updated

accordingly. This is completely different in meaning and understanding from the present teachings and does not support the Examiner's position. It should be noted that the consistency replacement function is code executed in accordance with a status. The action of the code is not a consistency policy in and of itself. It is a function not a new consistency policy being selected. This is supported by col. 3, lines 61-64, which states that the functions are components which can make up a policy. The Examiner is confusing these functions, e.g., do not care, with consistency policies.

Col. 8, lines 59-61 of Islam describes that if status bits change (e.g., "ignore" changes to "notify", etc.) then the function associated with the status bits should be updated.

Col. 10, line 57 to col. 11, line 4 of Islam describes a condition where a first consistency action is taken until a period elapses and then a second consistency action is taken.

None of the cited sections of Islam teaches or suggests selecting a consistency policy from the plurality of consistency policies for an object, wherein the selection is made to improve system performance such that, the consistency policy selected for the object is selected based on a balance between consistency level and performance.

Since similar language is included in claims 21 and 43, no new issues have been raised by this amendment, and the present claims 1, 20, 21 and 43 and claims dependent therefrom are believed to be in condition for allowance for at least the stated reasons. Claims 2-19 and 22-42 are believed to be in condition for allowance due at least to their dependency from claims 1 and 21, respectively. However, other reasons exist for allowing these dependent claims.

Nowhere in Islam is it disclosed or suggested to select a consistency policy based upon system performance, and in addition, Islam does not disclose or suggest choosing a consistency policy for at least one object, which maximizes system performance or wherein system performance is maximized by adjusting at least one of CPU overhead, communication latency and message overhead as recited in claims 12, 13, 35 and 36.

By the Office Action, claims 2-3 and 24-26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Islam in view of Stenstrom ("A cache consistency protocol for multiprocessors with multistage networks", ACM 1989, pp 407-415).

Stenstrom provides a consistency protocol that is implemented in hardware to provide high speed response. Stenstrom fails to cure the deficiencies of Islam as set forth above. Reconsideration of the rejection is earnestly solicited for at least the reasons stated.

By the Office Action, claims 4-5, 15, 27-28 and 38 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Islam in view of US Patent Publication No. 2003/0061272 (hereinafter Krishnamurthy).

Krishnamurthy fails to cure the deficiencies of Islam as described above. Reconsideration of the rejection is earnestly solicited.

By the Office Action, claims 9-11 and 32-34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Islam in view of US Patent Publication No. 2002/0107935 (hereinafter Lowery).

Lowery is directed to a cache system and discloses the ability to monitor active or inactive states of caches. However, Lowery does not disclose or suggest a consistency coordinator, which manages the consistency policies of a system. Lowery does not teach a cache managing element as the Examiner states, and certainly does not teach a managing element that manages the policies for the caches. The active or inactive status of a given cache is an indicator to a community of whether a cache may be employed or not. Further, Lowery fails to disclose or suggest such a managing element that maintains connections with caches in the system in accordance with the activity of the consistency coordinator.

Therefore, Lowery fails to disclose or suggest at least: measuring activity of a consistency coordinator, which manages the consistency policies in the system; and maintaining connections with caches in the system in accordance with the activity of the consistency coordinator, as recited in claims 9 and 32. Further, Lowery fails to cure the deficiencies of Islam as described above. Reconsideration of the rejection is earnestly solicited for at least the stated reasons.

The Examiner relies on the statement that: a "Prima facie case of obviousness is established when teachings of prior art appear to suggest claimed subject matter... ." However, the activity of a consistency coordinator is not taught nor does it appear to be taught by Lowery. Even if the "master cache" is deemed a consistency coordinator, which it is not, the activity of the master cache is not measured and employed to maintain connections with caches in the system in accordance with its activity. Reconsideration of the rejection is earnestly solicited.

By the Office Action, claims 16-19, 39-42, 44 and 49-51 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Islam in view of U.S. Patent No. 6,145,054 to Mehrotra et al (hereinafter Mehrotra).

Mehrotra is directed to a cache system with multiple levels of caches. Each cache level includes a miss queue, victim queue, etc. Mehrotta does not disclose or suggest priority levels for the queues of a single cache for reporting to a consistency coordinator.

Claim 44 recites, *inter alia*, a system for maintaining consistent copies including: a plurality of caches for storing objects; each cache comprising at least two queues, which designate an update priority of the object included in each queue; a plurality of consistency policies maintained throughout the system such that at least one consistency policy results in different performance than a second consistency policy; and a coordination coordinator having selective communication with the caches, which manages requests for updates from the caches in accordance with the queue priority.

The cited combination of Islam and Mehrotra fails to disclose or suggest at least that: 1) each cache includes at least two queues, which designate an update priority of the object included in each queue; 2) a plurality of consistency policies maintained throughout the system such that at least one consistency policy results in different performance than a second consistency policy; and 3) a coordination coordinator having selective communication with the caches, which manages requests for updates from the caches in accordance with the queue priority.

While Mehrotra includes more than one queue in the system, the queues depicted in Fig. 7 are associated with an entire level in a hierarchical cache system. Further, each cache

device does not include at least two queues where the queues designate an update priority. This alone is sufficient to support an allowance over Mehrotta.

In addition, no consistency coordinator is disclosed in the cited combination, which manages requests for updates in accordance with queue priority where the queues themselves designate the update priority. (See claim 44). Nowhere in Mehrotta are caches attempting to report to a consistency coordinator based on a priority set for requests based on the type of queue in which the requests are placed. Instead, in Mehrotta, access is gained to a cache tag array through a multiplexer based on an application logic signal. The application logic is not disclosed or suggested to be in accordance with a cache queue priority.

It is therefore suggested that the cache queues in Mehrotta do not include levels of priority for accessing a consistency coordinator as recited in claim 44. The following passage from the present specification may assist in understanding the present claim 44.

> "Referring to FIG. 3, the system 10 is shown in greater detail. Each cache 13 maintains two communication queues: a High-Priority Queue 30 and a Best-Effort communication queue or Low-Priority Queue 32. These queues include the messages that need to be communicated to the consistency coordinator 12. As the names of the two queues suggest, the messages in the High-priority queue 30 are given priority over those in the Low-Priority (Best-Effort) queue 32. Messages are put into these queues based on a multitude of factors such as the operation's impact on the user-perceived latency and whether the operation resulted in any object getting close to violating its consistency rules, etc."

Islam and/or Mehrotta fail to disclose or suggest, at least that 1) each cache includes at least two queues, which designate an update priority of the object included in each queue; 2) a plurality of consistency policies maintained throughout the system such that at least one consistency policy results in different performance than a second consistency policy; and 3)

a coordination coordinator having selective communication with the caches, which manages requests for updates from the caches in accordance with the queue priority.

The cited sections of Mehrotta (FIG. 3, FIG. 7, col. 3, lines 47-65, col. 9, line 47 through col. 10, line 6, and col. 14, line 17 through col. 15 line 13) by the Examiner do not provide the structure or functions to support the rejection of the present claim 44. Further, Mehrotta fails to cure the deficiencies of Islam as set forth above. It is therefore respectfully submitted that claims 16-19, 39-42, 44 and 49-51 are in condition for allowance for at least the stated reasons over the cited combination of Mehrotta and Islam. Reconsideration is earnestly solicited.

By the Office Action, claims 45-46 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Islam in view Mehrotra and further in view of Stenstrom. Claims 47-48 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Islam in view Mehrotra and further in view of Krisnamurthy. Claim 52 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Islam in view Mehrotra and further in view of Lowery.

It is respectfully submitted that claims 45-48 and 52 depend from claim 44 which is believed to be in condition for allowance over the cited art. Reconsideration of the rejections is earnestly solicited.

While the Applicant believes that the present claims are not anticipated and not obvious in view of the cited art, it is noted that Islam and the present application are commonly assigned and owned. Should the Examiner decide to provide an **obvious-type double**

patenting rejection, the Applicant would consider filing a **terminal disclaimer** to overcome such a rejection.

In view of the foregoing amendments and remarks, it is respectfully submitted that all the claims now pending in the application are in condition for allowance. Early and favorable reconsideration of the case is respectfully requested.

It is believed that no additional fees or charges are currently due. However, in the event that any additional fees or charges are required at this time in connection with the application, they may be charged to applicant's IBM Deposit Account No. 50-0510.

Respectfully submitted,

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